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DISEASES OF THE CHEST

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Editorial Comment

GOOD NEWS FOR BAD Dr. Gallup's poll on tuberculosis is anything but encouraging so far as our continuous efforts to educate the public is concerned. Approximately a hundred million dollars has been spent on the campaign of education over a period of many years—Yet, according to Dr. Gallup's poll only 18 per cent of the people believe that tuberculosis is caused by a germ.

Recent comments in the Bulletin of the National Tuberculosis Association include this statement, "Public revealed as Having Basic Knowledge of Cause and Treatment." The poll shows less than 50 per cent believe that rest is essential. Only 26 per cent believe that fresh air is essential, and only 13 per cent believe in sanatorium treatment . . So much for the basic knowledge of the public on treatment.

Now, how about the basic knowledge on the cause of tuberculosis—When only 18 per cent believe the disease is caused by a germ, and 52 per cent believe that tuberculosis is inherited at birth. Some of these figures are explained by "confusion in the minds of the people." The poll certainly does show that there is confusion—But why the confusion after all the time and money spent on educational campaigns?

It is interesting to note that 76 per cent of the people think tuberculosis is contagious. Why do they think this? Is it due to education or is it due to the natural phobia against the disease. Phthisiophobia has always existed, and still exists. The fear of "catching" diseases is a natural instinct. Most people, no doubt, know that small pox is contagious; yet it is not a "germ" disease so far as anybody knows.

I heartily subscribe to the comment in the bulletin—"This would seem to indicate that the campaign of social workers depicting the evils of poor living conditions has had more effect than the campaign of doctors and health authorities against germ infection." And again I agree with "H. E. K." in his comment: "The wise tuberculosis worker will view this poll as a valuable guide and not as a precise formula on which to base his educational campaign. He will remember, too, that the state of the people's knowledge is never static, but is in constant flux. We are grateful for the information given us by the survey, but do not propose to lash our helm and go below for a snooze." Certainly, there is no time to "snooze". It is right that we should analyze this poll; but not attempt to explain away the real truth that it reveals. The truth is that there is much yet to be done in an educational way. Let us forget the prediction "that within 25 years we can expect to see tuberculosis eradicated in this country."

The Gallup Poll is, no doubt, a rather shocking revelation. However we should accept the

challenge. Christmas Seal sale time is approaching. Let us redouble our efforts so we may have more money for educational purposes. Let those in charge of mapping a campaign of education revamp the educational set-up to meet the weaknesses revealed by this poll. If we all work together and act now, I am sure that Dr. Gallup's next poll will show a more favorable situation. C. M. H.

CONSERVATIVE TREATMENT OF TUBERCULOSIS Dorland's 17th edition defines conservative as "aiming at the preservation of health or at the restoration and repair of parts."

We take issue with those who call themselves conservative in the treatment of tuberculosis because they refrain from administering treatment which is admitted to promote the rapidity of healing in the tuberculous part and increase the percentage of cures and sputum change from positive to negative, just because some patients will get well without it.

Conservative treatment of tuberculosis is that treatment which will cure the largest percentage of patients in the shortest time. From the public health standpoint and from the economic standpoint, such treatment, by hastening sputum conversion from tubercle bacilli positive to negative and by hastening return of the patient to industry, is also conservative.

A tuberculous hip is conserved by immobilization just as soon as active tuberculous disease is diagnosed therein. Delay is known too often to result in ultimate impaired function. Likewise, discovery or diagnosis of active tuberculous disease in a lung should be immediately followed by consideration of the immobilization of that lung. Delay may result in cavitation and pleural adhesions requiring major surgical procedures such as multiple rib removal (thoracoplasty).

Doctor John B. Deaver was at one time considered radical because he preached the early appendectomy. Today, his memory is honored for that which was in fact the noblest conservatism, the conserving of the lives of the greatest percentage of afflicted humanity.

Every reliable report throughout the World on modern tuberculosis treatment shows that collapse therapy cures more tuberculous patients than any other treatment and that the relapse percentage is smaller thereby. The reports also show that the earlier a patient is treated, the smaller the death rate.

Let us get straight in our minds then that Conservative Treatment is Collapse Therapy; early collapse therapy, long collapse therapy.

Watch your statistics! F. W. B.

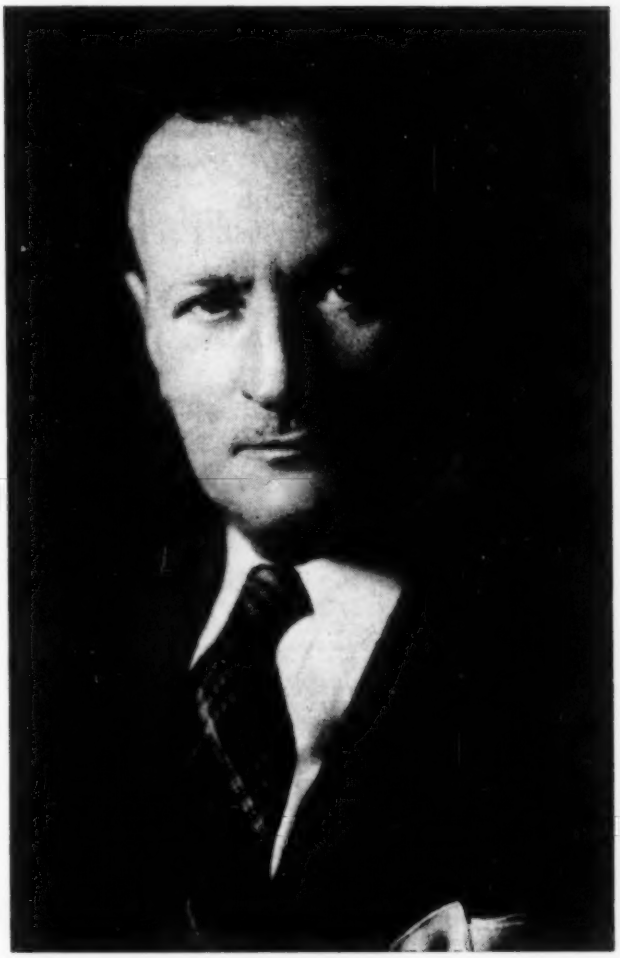
CASE FINDING Today, with increasing frequency, tuberculosis surveys are being made in the large industrial groups. This is a happy innovation and one that promises much in tuberculosis control.

Such surveys have been made in the early grammar grades and have resulted in uncovering many hidden cases in the home; and in breaking the contact between them and their young victims. The infected individuals in this younger group of society have been given the benefit of intelligent supervision, and the augmented chance of escaping the scourge of advanced tuberculosis.

All over the nation such surveys are being conducted in the young adult groups, in the high schools and universities. The importance of case finding studies in this group has been recognized for it is here that the re-infection type of the disease usually first manifests itself. A large number of cases are found before they have progressed to an advanced stage and before they have developed into open cases and become spreaders of the disease. An interesting study that is growing out of the surveys in this group is the time relationship between the demonstration of lesions in the lungs and the appearance of symptoms. It has been rather definitely shown that this interval may be amazingly long; not uncommonly, one to three years.

There seems to be a slight trend toward the older age periods of life for the disease to first make its presence known. This shift is particularly noticeable in the male sex. Tuberculosis case finding among the industrial groups is consequently resulting in the finding of many open cases of the disease; and the segregation of these spreaders from their fellow workers. It is certainly to be expected that such a program will go a long way in stamping out the repeated out-cropping of tuberculosis in offices, factories, etc. In some instances the initiative has been taken by industry. C. H. H.

Address of the Incoming President*



AMERICAN COLLEGE of CHEST PHYSICIANS

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YOU HAVE already heard my distinguished predecessor enumerate the achievements of the American College of Chest Physicians during his term of office, and it seems only logical that the incoming President append a few more or less fitting words to this report, followed by a brief exposé of next year's program.

However, I should like to preface my comments by expressing to the Fellows of the College my deep appreciation for the honor you have done me in making me President this year. It is a distinction to be President of any prominent national medical organization, but it is a particular privilege to be allowed to preside over an organization which comprises the finest talent engaged in the medical and surgical treatment of tuberculosis and diseases of the chest. When I survey the list of Fellows of our College, I am all the more sensible to the honor you have bestowed upon me.

Yet, honored as I feel, I am deeply aware of an objective which is more important than either you or me as individuals—the welfare of our College, and its role in diseases of the chest. And I am happy to add that in no other group of specialists is the measured trend of present accomplishments so gratifyingly revealed.

The situation as it appears at present is foreboding of a clash between the medical profession and the Government, since the theory and principles of the two institutions are unalterably opposed. It is imperative that our College and entire medical profession foresee and acknowledge a critically tense period lasting for the next year or two, because an immediate defensive must be assembled to confront an attack such as has never yet been dealt against us in this Country.

Undeniably, various schemes of socialization and regimentation of the medical profession are being studied, and attempts will

*Delivered on May 14, 1939, at the Fifth Annual Meeting of The American College of Chest Physicians, held at St. Louis.

be made to pass legislation along these lines at this or the next session of Congress. It is evident that the Government has no intention of allowing the profession its previous unrestricted avenue, so we may anticipate further assaults from the different departments of the Federal Government.

Whether the profession will submit to this transition, or resist all efforts to bring it under Federal control, will not long remain undetermined; for there can be little doubt, even during the current congressional session, that events are taking place which will tend to misshape the course of medical practice inordinately. Its new channels will remain under the direction of medical men only by the device of formulating a different mode of action and carrying out the new plan with vigorous precision.

It is the belief of competent observers that the Government has blundered seriously in attempting to apply anti-trust laws to the District of Columbia Medical Society. But, paradoxically, this faux pas has also strengthened the position of the profession in public opinion*.

Little as we relish consideration of these possibilities, and howsoever we dislike allotting valuable time to their favorable solution—time which might better be consumed in scientific work—escape is not assured by merely ignoring the many omens which indicate further governmental meddling. It must be fully realized that a certain amount of persecution is in order, and that discussion and criticism will be frequent in the months to come.

Since a disruption between these two systems cannot possibly be avoided, since legislation will surely be proposed, and since the Government apparently hopes to set up a bureaucratic machine to administer medical service, the decision of the profession must be prompt and explicit. This should concern the College vitally, as alarming inroads have already been made into private practice through the construction of hospitals by means of State, County and Federal grants. With one more such incursion, sponsored by the Folks Committee of the National Tuberculosis Association, the private specialist will inevitably go on relief.

Therefore, a procedure must be chosen which will sustain the actual high standards of medical service, continue the present rapid growth of scientific knowledge, and provide for future developments which we desire to be especially worth while.

Whatever the equitable course of action may be which is right for the profession to follow will require much deliberation; but it is important that it be one which a justly roused profession can consistently pursue. It must lead into the open, in direct conflict with critics and meddlers, with pride in its position, and assurance that its stand is correct. The profession must counter every affront publicly and with vigor. There must be no sacrifice of principle or belief, and there must be no let-down in the orderly progress of evolution, for the advance of medicine is contingent upon time coupled with the continued endeavors of the profession.

Political proposals foster only revolution. Political attacks are to be answered with utmost honesty and sincerity by the entire profession—the specialty groups, and every individual member. The College has definite responsibilities in this matter. The entire burden should not be thrown upon the American Medical Association; therefore, I solicit your individual opinions and recommendations. No doubt, many of you have given thought to this matter; so may I hope for suggestions from you?

A new horizon has been established by my eminent predecessor, who has set unique standards for the College. In my capacity as Chairman of two important committees, I have had an unusual opportunity to view the activities of the College, and have repeatedly called upon our retiring President and the President of the Board of Regents for advice. They have rendered most valuable assistance, and have wisely counselled me on many important problems. I particularly wish to pay tribute to the efficiency of our Executive Secretary, Mr. Murray Kornfeld, whose tireless efforts in behalf of the College deserve the fullest praise.

Those who were skeptical about our longevity must admit that, while still young, we rest upon a solid foundation, and have well

* Since this talk was delivered, Justice James M. Proctor of the U. S. District Court for D. C., held that the A.M.A. and the practice of medicine are not a "trade" within the meaning of the Anti-Monopoly and Anti-Trust statutes.

super-annuated our adolescent period. We are strong and active, and are here to stay; we are happy to have our own organization of highly qualified specialists—unhampered by lay members. We have no jealousy of other organizations, but are pleased to let them work as they choose, unmolested by us; for, contradictory to some statements, we have never been antagonistic toward them. On the contrary, we have expressed a desire to cooperate. At the same time, we will tolerate no interference with our program and policies. We will attend to our own business, meet within medical circles, and concern ourselves with medical problems, and we should definitely go on record as assuming leadership in medical problems of tuberculosis control.

In voicing the preceding remarks, I have done so yielding to the tradition that an incoming President should have some contribution to offer; yet I think the time might better be devoted to the scientific program, and I share your eager anticipation to bring the business session to a close, have lunch and proceed with the afternoon meeting. So, I shall not detain you long.

Allow me at this time to review our progress briefly. We have perfected the organization of State Governors, with the exception of a few states (South Dakota, North Dakota, Nevada and Wyoming) where no one was qualified. We selected men for Governors who were expected to take an active interest in our College; those who have proved inactive will be replaced, at expiration of their terms of office, by successors who are willing to work. Inasmuch as the Governors of the College form the foundation upon which the College will build its future program, it is essential that these men be enterprising. The same holds true of Committee Members—those who are not active should be replaced by energetic workers who manifest an interest in the organization.

The Committee for the Advancement of Undergraduate Teaching in Medical Schools has gained a notable beginning. I had hoped to have their plan on hand ready to submit to the Faculty of the University of Oregon Medical School, which would be the first institution to follow the recommendations of the College regarding undergraduate teaching. As my recommendations must be submitted at once, this report will not be available for my use. This committee has a momentous responsibility in bringing the teaching of tuberculosis and lung diseases up to the merited standard.

I should like to see the organization of tuberculosis committees in the states and counties completed and functioning during my term of office. This should receive the prompt attention of the Governors working with the College Committee appointed last year, and again I wish to express my gratitude to the members of the Committee, who have almost unexceptionally worked diligently and accomplished much, as I recounted this morning.

To the Governors of the College I wish to affirm appreciation for your enthusiastic reply to letters written you. You will be gratified to know that our exertion and industry have been highly productive, if the mass of reassuring letters from all parts of the Country is sufficient proof. Truly, the response has exceeded my fondest hopes.

The Governors of each state should maintain an active interest in formulating and directing the tuberculosis program in their respective states; copies of their plans and programs should be sent to the committee member who is responsible for his geographical area; the committee members will report all activities to the Chairman, who, in turn, will send copies to the President of the College, the President of the Board of Regents and the Executive Secretary.

Last year it was hoped that the Committee for the Advancement of Scientific Programs and the officials of the Section on Medicine of the American Medical Association could together devise a plan for an annual program on chest diseases at the Association meetings. The Chairman and Secretary of the Section on Medicine at this year's meeting expressed their willingness to cooperate; but the Section program had already been completed when my committee made the proposal. I think the Committee should negotiate at once, while here in St. Louis, with the Chairman and Secretary of the Section on Medicine of the American Medical Association, and secure a place on next year's program. This committee, through the Governors of the various states, should continue

to stimulate interest in such papers for the state and county medical society programs.

We should continue the policy of having each new applicant for Fellowship in the College endorsed by the Governor of the state wherein the applicant resides, the Regent of the district, and the Chairman of the Board of Regents before he is accepted, and we should remain unshaken in our high standards.

I would suggest that qualified officers of the Army, Navy and Marine Hospital Medical Corps, United States Public Health Service and the Veterans Administration be admitted without initiation fee, and possibly without dues.

The American College of Chest Physicians can be a powerful organization in elevating the standards of the phthisiotherapists; also, it can be a medium for achieving a better understanding between the specialists and the general medical profession in the various states. And, since our members represent largely the intellectual select of our group, they should have great influence in their respective states.

Now, Fellows of the College, the future of the College rests in your hands. Your trust in our aim, your devotion, and your active cooperation will assure its success.

Pulmonary Tuberculosis in England

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DURING the year I recently spent in England I was very much interested in learning all I could about how the English handle their tuberculosis problem. I spent most of my time in London, but I had an opportunity to visit some of their best sanatoria and Papworth Colony near Cambridge.

The Brompton Hospital for diseases of the chest is the principal tuberculosis center in the city of London. This ancient four hundred bed hospital, blackened by many a London fog, stands half on each side of Fulham Road in the southwest part of the city. On the fence is a large sign soliciting contributions and a box with a slot in it big enough to receive a half crown. Near the front door is a large container in which the passerby or the visitor is requested to deposit any piece of tin foil he may possess, for these contributions go toward the support of this voluntary hospital.

To Brompton Hospital come the best chest specialists Harley Street can produce to conduct the clinics and to supervise the care of the patients in its numerous wards.

This hospital is a clearing house for all diseases of the chest. They come in for diagnosis and a period of treatment. One often sees cases of pulmonary tuberculosis, bronchiectasis, carcinoma of the lung and lung abscess side by side in the same ward. Any other possible chest condition may be found there. No effort is made to keep tuberculosis cases separate from the others. Usually after a diagnosis of pulmonary tuberculosis is made, the case is sent to the Brompton Sanatorium at Frimley or to some other such institution.

Frequently, artificial pneumothorax is started before the patient is transferred, or some form of surgical collapse therapy may be done first.

Over 2400 cases pass through the wards of Brompton Hospital in one year. They also have a large out-patient clinic which treats about 1000 each week. Many of these cases come in for artificial pneumothorax and routine check ups.

In following up their cases they rely mostly upon frequent x-rays and blood sedimentation tests. They do a careful physical examination on all new cases, but recognize the fact that much can be missed by a physical which can be easily found in a film of the chest.

Their histories are brief and to the point. They do their work in a leisurely manner, but there is very little lost motion and no unnecessary things are done. An immense amount of work is turned out there in one year.

*Medical Director, Canyon Sanatorium.

They have one medium sized surgery on the top floor. There they begin to operate each day about three P. M. and go on until 8:00 or 9:00 P. M. Dr. Tudor Edwards and Dr. J. E. H. Roberts are the two best known chest surgeons and do most of the surgery at Brompton. Each week two or three thoracoplasties, several extrapleural pneumothoraces, a few lobectomies and perhaps a pneumonectomy besides other procedures are done.

It is always interesting to watch these men working silently and skillfully in their white gum boots, green gowns and caps surrounded by quiet onlookers. The operating table is always draped in green. They are very careful in their handling of the patient, always having three people near his head. the anesthetist, one nurse who keeps her finger on the pulse continuously and a doctor who checks the blood pressure frequently.

On the whole, there is very little fundamental difference between the American and the English way of treating tuberculosis. We both lay the emphasis upon rest first, fresh air second and a simple nourishing, well balanced diet third. We both use sanatorium care wherever possible. They believe thoroughly in the value of compression therapy and do many bilateral pneumothoraces. They are giving extrapleural pneumothorax a good, fair trial and seem to be getting good results in about two thirds of their cases. Their mortality rate from tuberculosis is somewhat higher than ours.

It seemed to me that, on the whole, their patients take the cure better than ours. They seem more tractable and less inclined to question the doctors' advice. In fact, there is a tendency to accept the doctors' word as law and to ask no questions. In making ward rounds it was most unusual for a patient ever to ask a question. In most cases they obey the doctors' orders without hesitation.

The gold treatment for tuberculosis was used quite a little in what they considered suitable cases. Some of the men there felt it helped certain cases whose chest condition had become stationary. Gold is used there about as tuberculin is used therapeutically here.

The English are not slow to adopt new methods in the treatment of tuberculosis. It is my opinion that they keep abreast of the times as well as we do, if not a little better in some respects. For instance Brompton had a tomograph and so did several sanatoria I visited. As yet this device is not very common in this country. They are certainly doing as much compression therapy as we are. I did not hear of any tuberculin testing campaigns on a large scale, but in view of recent tendencies, it is perhaps just as well they were not in too much of a hurry about that.

The English are, I believe, essentially a very matter of fact practical people and do nothing until they are pretty sure they are right. They have accomplished something along the lines of rehabilitation of the tuberculous, which so far we have not undertaken on a comparable scale. I refer to the Papworth Colony near Cambridge.

This project was started in 1914 by Sir Pendrill Varrier-Jones, who has been knighted for his work. In twenty-five years this colony has grown from one patient to about 1200 people.

Dr. Jones began to realize early in his work with the tuberculous that it was one thing to get a patient well, but quite another to keep him that way. Therefore, he decided to do something about it and the result of his effort is the fine institution at Papworth which consists of a sanatorium, residence districts for patients and a group of fine modern work shops. Some are used for the manufacture of leather goods and travelling cases. There is a large printing and book binding shop and a big furniture factory on the grounds.

Patients are sent here from all over England and, as they improve, are allowed to work each one according to his ability. As the patient improves his work time is increased under the doctor's supervision until he is doing a full day's work.

Single patients live in dormitories while those with families are rented modern 5 room cottages at $2.50 per week. The patient's family is allowed to live with him there. He is paid the regular union scale for the work he does and the goods produced are sold in the open market.

The colony is self supporting and is patronized by the Royal Family. They need to raise money by voluntary subscription for new buildings and capital outlay only.

I was somewhat surprised to find that the tuberculosis men generally throughout England were not very enthusiastic about Papworth. However, what they lacked in enthusiasm was more than made up for by that of Sir Pendrill and his associates. I came to the conclusion that perhaps "a prophet is not with out honor save in his own country."

Papworth Colony is being imitated in other parts of the world. There is one in Ireland, one or two in France, one in Russia and several more in other countries of Europe. The fundamental idea seems to me to be good and I am surprised that something along that line has not been developed in this country.

I strongly advise anyone interested in tuberculosis who goes to England to set aside a day for a visit to Papworth where he will be entertained in an almost American manner, for the staff are good salesmen and will put their rehabilitation idea over very well indeed. First, however, be sure to write to Sir Pendrill for an appointment for otherwise you will be disappointed in the reception you will receive.

I should not close this paper without a mention of bronchiectasis which seemed almost as common in London as pulmonary tuberculosis and chronic arthritis. At Brompton Hospital this disease is treated medically by postural drainage and the creosote tank, in which patients sit regularly each week and inhale the fumes of creosote. The special postural tables used are so designed that the lung may be easily drained, regardless of which lobe the lesion is located in. Obstinate cases are treated surgically by lobectomy or pneumonectomy.

At the Victoria Park Hospital, bronchoscopy drainage is the method of choice in treating bronchiectasis medically. They hold a weekly clinic to which the out-patients come regularly for aspiration and the instillation of an antiseptic solution. Very good results are secured by this method.

There are many other very interesting things about the practice of medicine in England which one learns by a years' residence there. I am only sorry that space does not permit me to tell you about more of them.

The English practitioners read our books and periodicals and appreciate many of the things we do. I think on the whole they know more about us than we do about them. However, it would be a fine thing for both our countries if all their doctors could spend a year in our country and all of ours the same length of time in England. Then we would really understand and appreciate one another.

450 Sutter Street.

Intrapleural Pneumolysis*

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IN THE SHORT time allotted for this paper I have elected to present to the Conference my impressions of this operation, tabulate my results, and demonstrate slides of various types of cases.

Instrument Used

The instrument used is a one way type, operating on high frequency current. A low and high coagulation current, and a low and high cutting current, all are provided for in the one instrument; it is one which can be used as a direct procedure, in contradistinction to the two way method. Many operators criticise this instrument and think it will soon be discarded.

Through one operative site, namely the fifth or sixth interspace, mid axillary line, adhesions may be reached at the dome of the chest as well as its anterior, posterior, and external aspects, so that adhesions may be cut at approximately right angles or denuded from the chest wall. It is merely a question of rotating the instrument, or keeping the grasping jaws open or closed on the adhesion attacked.

Carbonization may occur if the current is continued for too long a time when coagulating. The electrode may then become adherent

* Read before the Southern Tuberculosis Conference, Louisville, Kentucky, September, 1938.
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to the adhesion and difficulty will result in removing it. After my first few operations, I learned by experience to use the current indicated and to interrupt it at the proper time, so that now I am able to prevent serious carbonization.

Hemorrhage, I believe, can be as easily controlled as by the two way method. It is not necessary to grasp the tissues containing the bleeding point with the jaws of the instrument. The electrode may be applied directly with the jaws open.

Severe pain, as cited by Alexander when adhesions are severed close to the chest wall by electro-surgery, I have observed in only one case. When one severs an adhesion close to the brachial plexus, however, with any type of a heated instrument, I venture to say that a few jerks of the arm will be noted, and the patient will be inclined to tell the operator about it.

It is quite true that a bird's eye view of an adhesion cannot be obtained when the instrument carrying the electrode is being used, but about 2 cm. of it can be seen, and before selection of the point to be divided is made, the entire length and breadth of the adhesion may be viewed by moving the instrument in the desired direction.

The large trocar used in the one way method is said to increase the danger of emphysema in the chest wall. Reports indicate that transient emphysema frequently occurs when any type of instrument is used. In my cases I have never had a severe emphysema and, frequently, none at all has been observed.

Now having answered some of the criticisms directed toward the one way instrument, I wish to say that I believe this instrument is as effective as the two way type, that it is a more direct procedure, that adhesions may probably be oriented more quickly, and that there is less danger of injuring the lung tissue after an adhesion is cut because the electrode is held stationary and not apt to continue motion after an adhesion is cut and accidentally burn the lung.

I, therefore, feel that whether the one way or the two way instrument is selected for use, the operator, after he has gained experience, will find the one chosen to be satisfactory.

Perhaps the chief requisite, in any event, is to possess patience.

Indications

The indications for intrapleural pneumolysis, I have found to be relatively few, but these indications have led me to perform this operation on 16 per cent of my pneumothorax cases during the past three years.

A partial pneumothorax, of course, must be present to give the operator adequate space in which to work.

Perhaps the chief indication for this operation is to close a cavity, or cavities, which fail to close in a reasonable time, because of adhesions of many different varieties. A reasonable time, is a period of about two months after pneumothorax has been carried on with nearly neutral pressure. Adhesions will stretch about as much as possible in this time and, without using high positive pressures, which are rarely necessary in any type of case. There is seldom a valid reason for waiting four to six months before attempting the operation.

In the 61 cases herewith reported, however, the average time that pneumothorax has been carried on prior to operation is four months. This figure is high because seventeen of the early cases operated on had had a pneumothorax for over nine months, and three of these for over two years. One starts a pneumothorax with the hope that an effective collapse may be obtained in a short time. All too frequently the desired result is not attained even with the addition of a phrenic nerve operation. Why not get the result originally hoped for, by employing this operation as early as is feasible?

It is said, of course, that if one waits long enough the cavity in question may eventually close. Then again it may not. Whether or not it eventually closes, however, the indication for severing the adhesion usually remains. This leads me to a discussion of a second indication for the operation, namely, in order to effectively collapse a diseased area.

In discussing this indication with Dr. Nehil a short time ago, we were agreed that a diseased area, held out by adhesions, is not by any means at rest. When no cavity is seen by x-ray, one may have a false sense of security, and later on, see a cavity develop in

the pneumothorax lung or be astonished to find a spread in the contralateral lung. I believe these depressing occurrences may be prevented by employing intrapleural pneumolysis whenever indicated in such cases. I have recently operated on a case, not included in this report, with a negative sputum, in order that the patient might have the benefit of an effective collapse, and not run so much danger of a late spread of the disease. In a few of my cases I should have done the operation earlier, but I delayed because of negative sputum, only to have a positive sputum appear six months to a year later.

Both of the above indications apply to cases in which the operation may be safely attempted without danger of causing complications — such as empyema and broncho-pleural fistula. In certain types of cases, these indications still apply even if the operator believes that an empyema or broncho-pleural fistula may result. In such conditions adhesions are divided in the presence of tubercles or so close to lung tissue that they literally have to be peeled from the chest wall. Serious complications may be expected to result under these circumstances.

The cases which may be selected for this type of procedure are those in which the disease is becoming progressively worse with uncontrolled disease in the contralateral lung, and in which other surgical operations are contra-indicated. In this type of case intrapleural pneumolysis is the only surgical procedure that can be done with reasonable expectation of being beneficial to the patient.

Under these circumstances, if technical success is obtained by pneumolysis, the disease in the ipsilateral lung may become controlled, and the disease in the contralateral lung later on may eventually improve sufficiently to give the patient a reasonable hope of recovery.

Ten of the patients in this series presented this type of condition. They were all operated on regardless of the fact that tubercles were present in adhesions or lung tissue was drawn out in an adhesion to within 1½ cm. from the chest wall. It is my belief that none of these cases could have been expected to live without the benefit of this operation.

I am glad to say that six of the ten patients now are classed as apparently arrested, sputum negative. One patient with a bilateral pneumothorax still has an occasional positive sputum, but is much improved.

Therefore, of these ten cases which were considered hopeless under any other method of treatment, 60 per cent became apparently arrested because the operation was undertaken and completed in spite of the knowledge that complications might follow the procedure.

This point should be stressed, namely, the patient's general condition is usually improved in obtaining a collapse of cavities and diseased areas, even if empyema and an occasional broncho-pleural fistula develop after the operation. It is, of course, an unpardonable sin to enter lung tissue deliberately in the course of operation.

In considering indications for intrapleural pneumolysis, I can summarize by saying that each case is an individual problem and that adhesions should be cut if in any way possible, when it is believed that this method of procedure will most effectively bring about the desired result. Other measures should, of course, be thoroughly considered, and the method employed should be the one by which the patient may be expected to be the most benefited.

The cases which were selected for operation are those which could not be benefited as effectively, or at all, by any other procedure.

In 51 per cent of all the cases operated on, the prognosis was considered bad under any other method of treatment. In the remaining 49 per cent, the operation was considered the method of choice.

Contra-indications

There is only one contra-indication for not severing all adhesions which prevent an effective collapse, when it has been determined that the operation is indicated. That contra-indication is when the operation cannot possibly be done after a study of the adhesions by thorascopy. One needs at least a centimeter and a half between the lung tissue and the chest wall in which to work. When lung tissue is adherent to the chest wall or too near for the adhesion to be severed, with reasonable safety, a circle may be burned around the adherent area in the parietal pleura, with the hope that additional stretch-

ing may result, eventually giving room for cutting. After such an operation, the adhesion may possibly pull loose from the chest wall. Personally, I have not attempted this procedure, as I have considered it too dangerous.

The study of x-rays taken at the usual angles and the P-A position is very misleading when one is attempting to determine the possibility of successful pneumolysis. The thickness or breadth of adhesions and usually the number of them cannot be foretold by x-ray studies. Neither can it be determined how far lung tissue is carried out in a given adhesion.

The x-ray may even give the impression that an adhesion is present where the shadow is really caused by a mere ridge in the parietal pleura. I was so badly mislead in one case after pneumolysis had been done, where I thought all adhesions had been cut, that I thorascoped the patient again, ready to cut the one remaining adhesion. I was much chagrined to find merely a long ridge of parietal pleura in the posterior chest wall.

Thorascopy, therefore, is always necessary before it is possible to determine whether or not intrapleural pneumolysis is possible.

In the final analysis, the result one obtains from any special type of operation is what determines its practicability and its worth.

Technical results

The patients operated on number 59. On two of these cases, bilateral pneumolysis was done so the actual number of operations is 61. Of these, nine operations were done in two stages. In 52 all adhesions which could be severed were severed in one operation. It is not possible to discuss here the many types of adhesions encountered.

The operating time has been from a few minutes to an hour and a half. Rarely has a patient complained of any discomfort during the operation and, at times, the patient has gone to sleep while the operation was being performed. Routinely, however, the case to be operated on is given three grains of sodium amytal and a hypodermic injection of 1/32 or 1/16 grain of dilaudid, fifteen minutes before being brought to the operating room. Recently the dilaudid has been omitted because it occasionally caused vomiting, with resultant emphysema.

After operation, the patient is fluoroscoped before being taken from the operating room in order to see the immediate post-operative result, and determine whether a pneumothorax refill should be given or air removed from the pleural cavity. Usually, neither is necessary. The patient is then seen daily and pressure adjusted, as necessary, until refill intervals are regulated.

The average time penumothorax has been carried on before pneumolysis has been, as before stated, approximately four months. My more recent cases have been considered suitable for pneumolysis after two months have elapsed and sometimes earlier.

Of the 59 patients, 49 had contralateral disease, 19 of these with cavities. Of these 49 patients, 14 received bilateral pneumothorax, and in another 14, I crushed the phrenic nerve in the contralateral side.

Before pneumolysis, 7 patients received a phrenic nerve operation on the same side and 3 after operation.

During the period in which the operations were done there have been 375 pneumothorax cases. Pneumolysis has been done, therefore, on 16 per cent of them.

Forty-seven of the cases operated on had cavities measuring from 2 to 8 centimeters in diameter in the side to be operated on. In 42 of the 47, the cavities have closed. The purpose of the operation, therefore, was accomplished in 87 per cent of these cases. The cavities closed in an average time of two months. Some of them appeared to close in a few days, but thick walled cavities remained open, usually for weeks. In one case, where nine cavities were present, one with a very thick wall, the final closure occurred six months after operation. The patient's disease has been apparently arrested for the past year.

Of the 61 cases in which the operation was attempted, a good technical result failed to be obtained in 7. Technical success was, therefore, attained in 88.5 per cent of all operations. Twelve additional cases were thorascoped which were found to be unsuitable for an attempt at operation.

Complications

Empyema, which is considered a serious

complication, occurred in 15 cases, or 24.5 per cent. Five of these cases also had a broncho-plueral fistula. This percentage is admittedly high, but is to be expected from the type of adhesions which I deliberately chose to operate on, knowing full well at the time that empyema might occur. The eventual benefit to the patient from operation, even if complications might be expected to result from it, was always the deciding factor as to whether or not to proceed.

Any cloudy fluid developing in the same pleural cavity at any time after operation has been included in the figures. In one case, for instance, the empyema developed eight months after operation.

In six of the fifteen cases the empyema is cured. In three more, the fluid is now clear. In four, the fluid is still cloudy, but the patients are generally improved. Two cases are dead.

The two cases which died had an additional complication of broncho-pleural fistula. One of these cases, I feel, would have died in approximately the same time under any form of treatment. In the other case, thoracoplasty might have been the better procedure, although at the time I judged this major surgery to be contra-indicated.

Three other of the empyema cases developed a broncho-pleural fistula a varying number of months after operation. In one case, the patient's condition is generally improved, but the prognosis remains grave because of extensive uncontrolled contralateral disease present prior to operation.

Of the ten cases of empyema which occured without broncho-pleural fistula, therefore, nine are cured or controlled, and the fluid in the remaining one is now clear.

Of the five complications of broncho-pleural fistula, one was cured by thoracoplasty, one closed by treatment and the empyema is improved. One is still open, empyema unimproved, although the patient's condition is improved and in two instances, where this complication was present, the patient died. In all but three of the fifteen patients, therefore, the complications have been controlled.

Serous exudate occurred in five cases. In each case this was controlled after two or three aspirations. Small transient exudates are not considered as complications.

In this series no severe hemorrhage has been encountered, nor has any patient had a severe emphysema in the chest wall. I have never considered it necessary to employ a muscle plug for the operative wound as advocated by Overholt.

Results to patients

To evaluate the above results, it is necessary to determine what benefit the patients have received from operation. Forty-five of the fifty-nine patients, 76 per cent, are sputum negative and are considered as apparently arrested cases.

Nine of the remaining cases, or 15.2 per cent of the series, although still sputum positive, are much improved. I estimate that at least five of these cases, with continued treatment, will finally be classed as apparently arrested.

Therefore, 91.4 per cent of the patients who received intra-pleural pneumolysis have been much improved, and almost three-quarters of them have already apparently arrested cases.

Two cases, only, at present, have a grave prognosis.

Three patients in the series died, giving a death rate of 4.9 per cent. As I have said before, I believe that these three would have died regardless of the method of treatment attempted.

In this series, rapid improvement has been noted in the patient's condition after an effective operation. This, of course, has lessened the number of days in the sanatorium.

Frequently, a patient with a bad prognosis has been given the hope of eventual recovery, while in cases with a good prognosis the disease has been more effectively controlled.

It is estimated that at least ten of the patients now with a negative sputum would have died if they had not had the benefit of pneumolysis.

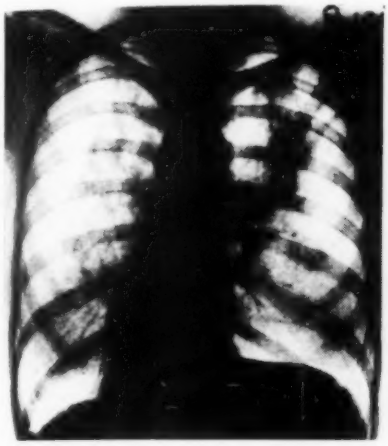
Last year I reported to the Association on a series of oleothorax cases. Prior to that time, obliterative pleuritis seemed to occur in patients rather frequently. During the past year, however, few indications for oleothorax have occurred, and only two after pneumolysis. It is indicated, therefore, that this operation has lessened the necessity for oleo-

thorax, and undoubtedly many thoracoplasties have been avoided.

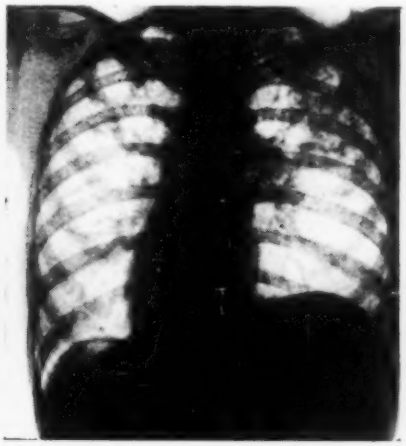
Conclusion

It is quite spectacular to view a complete collapse of a lung following operation, and it is always gratifying to see a thick walled cavity no longer held out by adhesions.

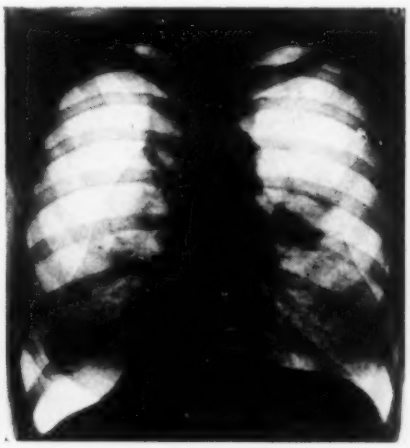
Intrapleural pneumolysis should be used in cases suitable for this operation in order that the patient may have the benefit of the expected result, not only when other operative procedures are contra-indicated, but also when the patient's condition may be improved more rapidly than would be possible by employing any other type of procedure.



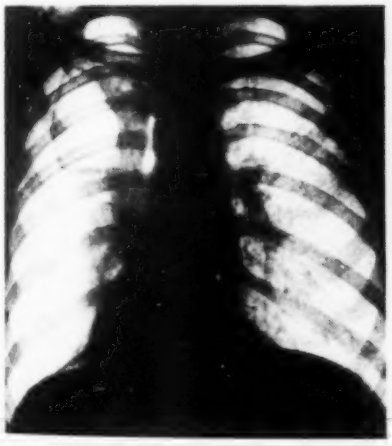
CASE I—A



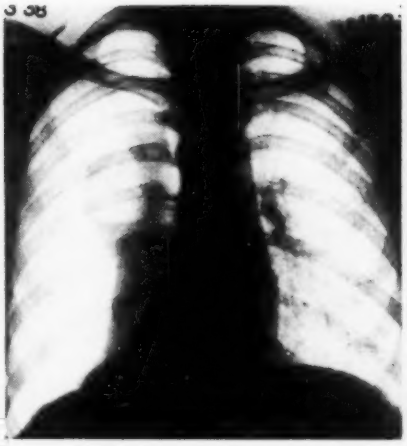
CASE I—B



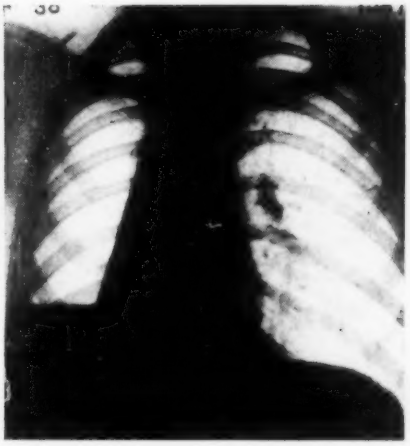
CASE I—C



CASE II—A



CASE II—B



CASE II—C

FILM DESCRIPTIONS

Case I.

A. Far advanced pulmonary tuberculosis, both lungs involved with several cavities in each lung.

Case I.

B. Bilateral pneumothorax not effective in either side. Cavities held open by adhesions.

Case I.

C. After bilateral intrapleural pneumolysis. Including several broad bands in each side, ten adhesions severed in the right, nine in the left. Sputum negative six months after admission.

Case II.

A. Large vomica held out close to chest wall by adhesions.

Case II.

B. Hard walled cavity open after adhesions severed.

Case II.

C. Cavity closed in five months. Late empyema now controlled. Sputum negative.

Silicosis and its Relation to Tuberculosis

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TO THE average lay mind, silicosis is a disease of recent origin and to the majority of physicians the disease was among the medical curiosities until recent years. However, reference has been made to the disease reaching back to early medical writings. The metal diggers in the 5th century B. C. developed symptoms, as noted by Hippocrates, which are comparable to similar symptoms noted in miners of the present day who are exposed to dust inhalation. The first attempt at a systematic and scientific approach to the study of the subject was that of Ramazzini in 1703.

During the past century, considerable data on the disease has been accumulated in different parts of the world, especially in England, where there developed a varied assortment of industrial processes, where dust constituted a hazard. Since the 16th century, it was popularly known that miners and stonemasons were unduly susceptible to tuberculosis, but often the underlying pathology caused by dust inhalation was unrecognized, because by the time the patient presented himself to a physician, symptoms of tuberculosis overshadowed the primary condition.

Terms such as "grinders rot" and "miners asthma" attest a recognition of the hazard associated with dusty occupations, but in this country this knowledge was largely popular, rather than scientific, until within the past twenty to twenty-five years, when controlled studies were carried out in various parts of the United States. Previous to this scientific approach to the study of pulmonary disease caused by the inhalation of dust, it was generally believed, and the leading text books conveyed the idea, that the characteristic of the disease was fibrosis, produced by a foreign body reaction in the air spaces, primarily due to the sharpness of the particles inhaled.

In 1915, Dr. Collis reviewed the status of pulmonary disease caused by dust inhalation and clearly expressed the theory that "free or crystalline silica is the causative agent in nearly all dusts that produce serious lung injury and susceptibility to tuberculosis" and that conversely the inhalation of non-silicious materials produced little effect upon mortality from pulmonary disease. Of all other dusts, only asbestos, a silicate of magnesia, has been definitely proved to produce significant amounts of pulmonary fibrosis. In other words, of all the pneumoconioses, only silicosis and asbestosis are now recognized as pathological entities of serious clinical importance. It is true that other dusts like coal and iron may modify the action of silica, but per se are incapable of setting up a definite disease process.

Such important discoveries as these were made during the last two decades, but attracted little attention, because it was believed that silicosis developed only in isolated industries, like mining and quarrying. Most physicians were unaware that silica is used in the manufacture of a great many common commodities and the diagnosis of this disease was unfamiliar to most of them. The legal profession, however, was quick in recognizing that silicosis was a compensible disease and damage suits for alleged silicosis were instituted against employers, often unjustified and in some locations became a "racket". In many states now, where the dust hazard exists in industries, legislation has been enacted which adequately protects both employer and employee.

In keeping with the title of this paper, it will be convenient to discuss a little more in detail silicosis, because unquestionably it is the most important of all the pneumoconioses.

Several years ago the Industrial Hygiene Section of the American Public Health Association adopted the following definition of silicosis: "A disease due to the breathing of air containing silica, characterized anatomically by generalized fibrotic changes and the development of miliary nodulations in both lungs; clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis, (some or all of whose

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symptoms may be present) and by characteristic roentgen ray findings." The disease is divided arbitrarily into first, second and third stages for convenience of description. There is a tendency at the present time in this country to give up the division into stages because not all cases progress regularly from one stage to the other.

Lanza and Vane estimate that somewhat over a half a million people in the United States are exposed to the inhalation of silica dust and a large percentage of these are potential victims of the disease.

In considering the etiology of silicosis, we are concerned primarily with two factors, namely, silica dust and its production, and the human lung and its ability to cope with the irritant.

To produce reaction in the pulmonary tissues an adequate quantity of sufficiently fine particles having the proper physical and chemical properties must be inhaled for a sufficient length of time. As stated above, experience has demonstrated that only silica dust is capable of causing the characteristic changes in the lung. The size of the inhaled particle is regulated by the physical architecture of the upper respiratory tract. Most of those extracted from silicotic lungs have been between 1 to 3 microns in size and none greater than 10 microns. Apparently, the smaller the size of the particle, the greater the toxicity.

Physiological mechanisms are adequate to protect the lungs against the cumulative action of silica, but if the silica dust becomes concentrated, the defense mechanism breaks down and dust accumulates in the air spaces in dangerous quantities. Other things being equal, a prolonged exposure to a moderate concentration will probably produce as extensive disease as a shorter exposure to excessive amounts. When other dusts, such as coal and iron ore dusts, are inhaled along with silica, the typical picture of uncomplicated silicosis is modified.

The other factor to be considered under etiology is the individual patient. It is questionable whether all persons have equal chances of developing silicosis when they are subjected to the same amount of dust for a given period of time.

Either sex may become affected if exposed to the dust. Women employed in soap powder industries and female pottery workers not infrequently develop silicosis. Race is of little significance except as it may concern susceptibility to tuberculosis. Changes in the respiratory system are undoubtedly of significance. In heavy dust concentrations the nostrils become blocked after a short time and a great many of those engaged in such occupations tend to become mouth breathers.

Of greater significance is the status of the pulmonary lymphatic system, as it is by means of this mechanism that a large portion of the dust which is inhaled into the terminal air spaces is eliminated. Repeated injury from infection and the action of foreign bodies tends to reduce the efficiency of the lymphatic system and, in the older individual, its capacity to deal with the dust particles is greatly reduced.

Of all the factors adversely influencing the human subject, infection is the most serious and of all infections tuberculosis is of the greatest import. Healed lesions of childhood tuberculosis in the lymph nodes may prevent the effective elimination of dust. Quiescent or inactive apical lesions unquestionably accelerate the local development of silicosis and an active tuberculosis causes a very severe, though chronically progressive reaction.

In considering the pathological picture of silicosis, experimental evidence shows that when measured quantities of the same sized particles of different dusts are injected, only silica and some of the silicates are capable of exciting significant reaction. The former theory that the injury produced was due to the sharpness of the particles is no longer tenable.

The characteristic feature of the tissue reaction to silica dust is the development of a peculiar type of hyaline fibrosis. Inhaled particles which elude the protective mechanism of the upper respiratory tract are ingested by phagocytic cells in the air spaces. Clumps are formed in and about the intrapulmonary lymphatic tissues. The phagocytes enter the lymphatic vessels and are transported to the tracheo-bronchial nodes at the hilum. Thus the irritating silica dust is concentrated in the lymphatic system. The enlarged nodules encroach upon the lymphatic vessels, impeding the flow of lymph. The efficiency of

the eliminating mechanism for dust that may be subsequently inhaled is seriously impaired. The phagocytes are now imprisoned in the alveoli and form fibrotic nodules in the lung parenchyma.

The relationship that exists between silicosis and pulmonary tuberculosis has always been felt to be a rather close one. The susceptibility to tuberculosis increases with the amount of silica reaction present in the tissues. Some authorities estimate that as high as 75 per cent of men with a fully established silicosis succumb to tuberculosis. An individual with a latent tuberculosis is very prone to have this lesion activitated, if exposed to a heavy concentration of silica dust; likewise, infection of the silicotic lung may easily occur by contact with an open case of tuberculosis. Many uncomplicated silicotic individuals, when symptoms develop, are sent to sanatoria with the diagnosis of tuberculosis. At the Mont Alto Sanatorium in Pennsylvania, there are always a number of individuals who have been exposed to the silica hazard, sent to the sanatorium with a diagnosis of tuberculosis, and probably 25 per cent of them eventually are found to be cases of silicosis without tuberculosis infection.

The diagnosis of silicosis depends on a history of adequate exposure to silica dust, x-ray studies and physical examination. History must show at least two years of work in a heavy concentration of fine silica dust. From the x-ray standpoint, simple discrete nodulation and massive conglomerate fibrosis with or without generalized nodulation constitute the manifestations of silicosis. Naturally, the symptoms vary with the type of lesion. Simple discrete nodulation has little clinical expression, but exercise tests may show slight changes in the pulse and respiratory rates. However, with conglomerate fibrosis, dyspnoea is a marked symptom. When active tuberculosis is present, symptoms of intoxication may be masked and bacilli may not be found in the sputum until just before death. The co-existence of silicosis and tuberculosis in the same lung seems to evidence a mutual enhancement of the one disease by the other.

The importance of a thorough occupational history is very necessary to remember. Besides the well known industries in which silica occurs, such as mining and quarrying, silica is used in the manufacture of many common articles like: soaps and scouring powders, tooth powders and pastes, paint, fertilizer, sand paper, optical lenses and insulation for pipes. A case of silicosis has been reported in a tap dancer who sprinkled sand on the floor to keep himself from slipping.

The treatment of silicosis is primarily prophylactic. There is no drug or other form of therapy known which will dissolve fibrous tissue in the lungs and restore a damaged lymphatic system. Silicosis is a preventable disease by means of adequate ventilating and dust exhaust systems. The elimination of sources of tuberculosis infection in industries where silica dust is a hazard is of equal importance.

This can only be accomplished by systematic examination, early diagnosis and repeated x-ray studies of individuals engaged in occupations involving exposure to silica dust.

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It is reported that the International Ladies' Garment Works Union, acting in conjunction with the W. P. A. and the New York City Department of Health, has started a drive to x-ray 25,000 garment workers in New York City, and further, that the Union is prepared to spend $50,000.00 in caring for the active cases that turn up. It is also reported that paper films will be used in connection with this survey.

Tuberculosis – Epidemiology*

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EPIDEMIOLOGY is the science of epidemics. An epidemic is common to many people—a prevailing disease. Tuberculosis, the disease, is common to many people, and tuberculosis, the infection, is common to most of us. The epidemiology of tuberculosis is a tremendous problem, the magnitude of which, few people have the least conception. Public apathy in regard to the deadliness of the disease must be overcome by all who are actively participating in the control and treatment of the disease. The whole problem requires not only the active participation of those in sanatoria treating the disease, but also of those in the field: the general practitioner, the public health doctor and nurse, the dispensary, and the clinic. It is true that there have been tremendous strides made in the treatment of the disease, and in more modern hospital facilities, even within the past ten years, but as one investigator puts it there definitely exists a stalemate between the forces of control and the forces of spread of the disease[1].

That we have been lagging in a definite program of case-finding (for that is the exact thing we are trying to achieve in the real control of this disease) is all too obvious when we observe that over 80 per cent of the cases admitted to this sanatorium[2] are in the far advanced stage. This means that these cases have gone on for 1 to 2 years with the active disease unrecognized, and capable of being spread and communicated to others. This hospital and this state is no different from any other locality, and we can truly regard society as a whole in this mass problem affecting the health of the population. The public themselves are not interested unless the disease touches a member of their family and, even then, not overly interested or precautious, for they seem not to regard the disease as a mortal wound. Pneumonia or meningitis is far more terrifying to them because it strikes without warning and like a thunderbolt, and puts the patient within the shadow of the grave within a very few hours. And we know that their fears are hardly justifiable in the vast majority of instances, in the light of our present knowledge. Yet they will temporize, treat at home, treat lightly, and not treat at all, even by the simplest of measures—bed rest; tuberculosis, which is still our foremost and perennial plague.

The man of the street will say (with patriotic pride) that the figures will show the death-rate from tuberculosis is constantly being lowered and eventually the disease will be wiped out, just as typhoid, smallpox, diptheria have been.

He claims that the death-rate from tuberculosis has declined from 200 per 100,000 in 1900 to 55 in 1935, for the country as a whole, and that this ought to be good enough proof that the disease is not only on the decline but definitely on its way to being wiped out.

Now these figures which he quotes are correct. This man of the street really has got something which we readily acknowledge as true—as far as figures go—but we want more—for we have the feeling that these figures alone do not adequately tell the true story of the epidemiology of tuberculosis. And although they are statistically correct, yet it seems they must be factually incorrect if we take even one glance at the typical age group of sanatoria patients.

But before we consider the real facts of the situation, let us ponder the real reason for the drop in the death-rate of tuberculosis in society as a whole. Is it that we are effecting more cures? Yes, we are effecting more apparently arrested cases, through advance methods in collapse therapy of diseased lungs. Do you think that alone accounts for the drop in the death-rate? Without hesitating, the answer is NO—the figures are nowhere near commensurate.

Can it be due to our methods of diagnosis? To some extent—yes. For we now have two valuable weapons for the detection of the disease in its early stages, the intracutaneous test, and the x-ray. Does this account alone for the drop in the death-rate? Again the answer is NO.

*Read before the Preston County Medical Society at Kingwood, West Virginia, on May 4, 1939.

Can it be that we have developed more resistance to the active disease in the past 35 years? Yes—it could be—but we probably haven't. Thirty-five years is really only one generation, and to have developed a so-called racial resistance in that short time seems very unlikely. To have developed a so-called family resistance to the disease in that short time seems also very unlikely.

Thus, if we can not account for the drop in the death rate fully by methods of treatment, early diagnosis, or increased resistance—what can be the reason?

The reason lies in one simple act—breaking the contact. But this simple act—has been possible only through the untiring efforts of public spirited citizens in establishing need for sanatoria, and affecting the quarantine and isolation which this disease merits. It is by contact that this disease, as other communicable and infectious diseases, is spread. It is by contact that whole families are wiped out. It is by contact that the innocent suffer, the children of the family acquiring the so-called childhood type of the disease, predisposing them to the adult disease later in life; or an acute, overwhelming, ever fatal, miliary, meningitis, or pneumonia. Do we have enough beds to break this contact in every case? By no means. There are approximately 100,000 beds in sanatoria throughout the whole country all filled at the present writing mostly by tuberculous patients[5].

How many more are there out in the community spreading the disease? Various guesses have been made, and purely guesses too. But the New York State Department of Health made a survey of its rural districts alone, and concluded that there are approximately six active cases plus three inactive cases per death from tuberculosis[4]. From this they deduce that there are about 500,000 cases of tuberculosis living with the general population. Does that look very much like control of the problem? How to detect, diagnose, isolate, and hospitalize these cases is the big problem confronting society.

Returning to the man in the street again with his argument about the steady decline in the death rate from tuberculosis since 1900, we observe that vital statistics give us a more accurate picture of the true state of affairs. This data shows that the leading or principle cause of death in the age group from 20 to 39 is still tuberculosis by a wide margin[6]. Then too, we read of a report published by a life insurance company investigating forty states of the Union and finding that nineteen recorded a higher mortality for tuberculosis in 1936 than the previous year[4].

And—as if to add insult to injury—we find that for the country as a whole the annual death rate is still over 70,000 with only 22 per cent of the deaths occurring in sanatoria or hospitals for the care of the disease[1]. This leaves the staggering total of 55,000 cases dying of tuberculosis in the home each year.

That such a situation is deplorable no one can gainsay, but how to remedy the problem will require superhuman efforts in mass education of the problem. We have not done a thing in this direction since Trudeau in 1905 first sounded the idea, "Education of the people and through them, of the state, is the first and greatest need in the prevention of tuberculosis."

Now in the course of reviewing the literature we have come upon many so-called surveys in various states and cities among school children, and general population. These all have been done toward the end of Case Finding. They have been very comprehensive in some cases, and very expensive in all cases[7]. They have yielded from .5 to 5 per cent results—that is in positive cases. The question has been brought up whether those surveys are worth the effort. Are not these investigators neglecting a far more fertile field, and cannot public funds be expended to a better advantage investigating all contacts of a known tuberculous patient? There are many becoming converted to this viewpoint when it is pointed out that there are usually 8 times the cases discovered investigating contacts, than in the childhood programs in the schools. Many think also that the grade school programs are rather futile in many respects when one considers the usual behaviour of tuberculosis in remaining quiescent during that period and flaring up after puberty. Hence it is more strongly thought that any school case-finding surveys are far more valuable during the high school years, or upon the entrance to college, or industry.

Thus far we have talked about public health, figures, surveys, and opinions. It has often

been said, and not without some truth, that the general practitioner sees every case first. His is the first opportunity to make the diagnosis and recommend the treatment, in the great majority of instances. People seldom go to specialists unless referred. The question is: *Is He Tuberculosis Conscious?* That doesn't imply that he should have every neurasthenic x-rayed—but it does imply that he should ever be on his guard.

Now I might tell you of two tuberculosis conscious rural physicians who lived in Minnesota[2]. Their attention was first drawn to the problem not by any specialized training or by any public health experts, but by the fact that there occurred in their town two deaths from tuberculous meningitis. Others might have simply signed them out, and forgotten about it. They knew full well that a most careful history and physical examination would not disclose every case of tuberculosis and hardly a single case of early disease. Even sputum tests and daily temperatures were inadequate to their way of thinking. And they were correct. They then began to skin-test any suspect, and the positive reactors were sent to a competent radiologist for a plate and correct interpretation thereof. They admitted frankly that they knew not how to interpret chest plates, and reposed this task in a man trained in the field, and relied upon his opinion. (It might be here stated that correct interpretation of a chest plate is a highly specialized event and that it is only by wide experience that one can become proficient in the art. And even then, to those well trained, it is quite difficult at times to state that "This is tuberculosis." "That is not tuberculosis").

In this way, these two country doctors diagnosed correctly in a five year period one case every 60 days—30 cases in all—with 18 picked up in routine practice while the remaining 12 were traced epidemiologically.

That all practitioners could do this seems more than likely when one remembers that there are one-half million cases abroad in the community somewhere—the vast majority being close to some known tuberculous individual. Those 30 cases are minute compared with the whole problem, but if every physician diagnosed and isolated three cases a year, it would require less than two years to discover the one-half million cases now at large.

Now that would be futile you say when you remember that only one-fifth of the cases can be hospitalized according to present figures. But to this we answer: If the profession makes it plain to the public that this is such a pressing need, that the disease is contagious and communicable, they will soon see the necessity of protecting the other members of the family and demand facilities for doing so.

The public health doctor, investigating all contacts of a known tuberculous patient reported to him can do much toward case-finding. He must cooperate with the practitioner in convincing these people that their future health lies in the early detection of the disease. This is a very ticklish problem at present, with no laws of compulsion for such procedure, as indeed there are none for reporting, isolation or quarantine in the majority of states.

The public health or district nurse can do much toward rounding up all contacts by cooperating with the practitioner and the public health doctor. She may know the family more intimately than the other two and, indeed, she is often more consulted than either in her daily rounds amongst the sick.

The sanatoria are very glad to cooperate with all practitioners in getting contacts x-rayed and giving their opinions on the evidence. The sanatorium physicians strongly urge that all contacts should be examined, and are willing to cooperate where requested, but they can have no active part in field work, being that it is outside their realm.

In summarizing we might make specific recommendations for the real control of this disease:

First, *Medical School* — Embryonic physicians should be taught a practical approach to the diagnosis, and epidemiology of tuberculosis. The management may be left to those desiring to specialize in the field. The old quintet of signs and symptoms should go. I refer to pleurisy, hemoptysis, rales at the apices, discovery of the bacilli, and x-ray evidence. True—these are reliable pieces of evidence in the correct diagnosis of the disease—any one of them, but we should neither wait for them, nor wait until an x-ray is the

only obvious thing to do. The student should be acquainted with the fact that the early signs and symptoms are NONE AT ALL. That is the diabolical part of it. He should be taught to suspect all contacts, and know full well how tuberculosis goes through families. He should appreciate that it is an infectious and communicable disease, and that it does not simply TOUCH a person and go away if the patient takes vitamins and an afternoon nap.

Undergraduate teaching of Tuberculosis—James Alexander Miller[3], gave a comprehensive and intelligent approach to the whole program, and it would be well worth while to review his observations and recommendations.

It is generally conceded that the average medical graduate has very little appreciation of the problems of tuberculosis, and that his preparation for diagnosis and treatment is far from satisfactory. Students usually see cases during their course in physical diagnosis—this creating a lasting impression that physical signs predominate. These cases being far-advanced and giving, as they do, a variable and lasting impression of cavity signs, fluid, atelectasis, and what not, show a one-sided picture of the disease as a clinical entity, and interfere with the progress towards earlier diagnosis which is the most important medical approach to THE CONTROL OF PULMONARY TUBERCULOSIS.

Dr. Miller emphasizes, as do many others, that this desired object can not be attained by improved skill in examination of the chest, but rather by an intelligent correlation between the history and the roentgenogram. It has been well said that early tuberculosis can be seen and not heard—and this means greater emphasis upon the x-ray of the chest, recognizing the limitations of physical examination. In this connection, the second year student should be taught by pathological specimens the correlation between the autopsy findings and the roentgenographic evidence.

Students rarely have the opportunity to study individual cases over a period of time and follow the roentgenograms. They are not encouraged to pursue the study of chronic illnesses, but, on the contrary, the acute forms appear more to impress them, as indeed later their hospital services cater little to the chronic forms as tuberculosis.

Is not this a teaching fault to be overcome?

Second, *The practice of medicine* — The practitioner and the public health doctor should work hand in hand with the main object of isolating all open cases and examining all contacts. Both should put into play what they have been taught in regard to this disease, and discharge their duties to the fullest, protecting the patients and, most of all, innocent contacts.

Third, *A public drive*—A nation-wide campaign, with public health authorities taking the initiative in arousing public interest, in passing laws making the disease reportable, with compulsory isolation of all active cases. This same campaign to arouse the public to the pressing need for more beds and buildings for purposes of isolation and treatment. This is a costly program, but in the long run will save the taxpayers millions of dollars and more than pay for itself in the stupendous economic losses it will eventually save.

Fourth, *Rehabilitation* — The thousands of patients discharged each year go forth in the world with a handicap—that of competing with entirely healthy individuals. Further than that, of necessity most will be restricted in their activities, and many cannot resume their former pursuits. For these reasons it is most desirable to have established in conjunction with the whole comprehensive program, a rehabilitation section; for the purpose, not only of keeping check on these patients' physical condition, and preventing another breakdown, but to act as a vocational guidance bureau.

By preventing another breakdown we can save, not only the health of the patient, but more public funds. By getting the patients profitable employment, which is not too much for their capacity, we accomplish our end. And our end is the apparent arrest of the disease process, the return of the individual to the society to which he belongs, working at a gainful occupation, with a healthy body and a happy mind.

(Continued on Page 26)

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Descriptive Booklet on Request

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Ralph C. Matson, M.D., & Marr Bisaillon, M.D.

1004 Stevens Building Portland, Oregon

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Organization News

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

PRESENT BY-LAWS

ARTICLE IV

Election of Fellows

Section 1. A Fellow of the American College of Chest Physicians shall have met the following qualifications and requirements:

(a) He shall be more than 29 years of age;

(b) He shall be the possessor of a diploma conferring the degree of Doctor of Medicine, from a medical school acceptable to the Board of Regents, and received at least five years prior to his election;

(c) He shall be a member in good standing in his local, state and national medical societies, except in the case of those not engaged in practice, such as full-time teachers, research workers, etc.;

(d) If a practitioner, he shall be a licentiate to practice medicine in his respective state, province or foreign country, or a medical officer in the governmental service; if not a practitioner, he shall be engaged either in scientific medical research or in teaching in a hospital or institution acceptable to the Board of Regents;

(e) He shall have had at least five years of training in the specialty of diseases of the chest, and he shall be prepared to furnish the Board of Regents with a written statement setting forth his qualifications and fitness for becoming a Fellow of the American College of Chest Physicians.

Section 2. He shall prepare and submit his application setting forth his qualifications for Fellowship in the American College of Chest Physicians on an application form furnished to the applicant for this purpose by the executive offices of the American College of Chest Physicians. He shall then deliver the application together with the Fellowship Fee and dues for the current year to the Chairman of the Board of Regents of the American College of Chest Physicians. The Chairman of the Board of Regents will submit the application to the Governor of the College in the state wherein the applicant resides, whose duty it will be to endorse or reject the application. In the event of endorsement, the application will be forwarded to the Regent of the College in the district wherein the applicant resides, whose duty it will be to endorse or reject the application. In the event of endorsement, the application is to be returned to the Chairman of the Board of Regents who will in turn, notify the applicant of his acceptance as a Fellow of the American College of Chest Physicians. In the event of the application being rejected, the Fellowship Fee and all other fees advanced by the applicant shall be returned to the applicant in full by the Chairman of the Board of Regents.

NOTE: To amend Article IV of the By-Laws as above to read as follows:

ELECTION OF FELLOWS AND ASSOCIATES

Section 3. An Associate of the American College of Chest Physicians shall have met the following requirements:

(a) He shall be more than 25 years of age.

(b) He shall be the possessor of a diploma conferring the degree of Doctor of Medicine from a medical school acceptable to the Board of Regents.

(c) He shall be a member in good standing in his local, state, and national medical societies, except in the case of those not engaged in practice, such as full-time research workers, and those connected with the army, navy, veterans bureaus, and public health services.

(d) If a practitioner, he shall be a licentiate to practice medicine in his respective state, province or foreign country, or a medical officer in the governmental service; if not a practitioner, he shall be engaged either in a scientific medical research or in teaching in a hospital or institution acceptable to the Board of Regents.

(e) He shall have had at least two years training in the speciality of diseases of the chest, and he shall be prepared to furnish the Board of Regents with a written statement setting forth his qualifications and his intention of applying for a Fellowship in the College at such time as he is able to comply with the requirements for Fellowship in the American College of Chest Physicians.

Section 4. (a) He shall prepare and submit his application setting forth his qualifications for Associate Membership in the American College of Chest Physicians on an application form furnished to the applicant for this purpose by the executive offices of the American College of Chest Physicians. He shall then deliver the application together with the Annual Dues for the current year to the Chairman of the Board of Regents of the American College of Chest Physicians. The Chairman of the Board of Regents will submit the application to the Governor of the College in the state wherein the applicant resides, whose duty it will be to endorse or reject the application. In the event of endorsement, the application will be forwarded to the Regent of the College in the district wherein the applicant resides, whose duty it will be to endorse or reject the application. The application is then to be returned to the Chairman of the

(*Continued to page 28*)

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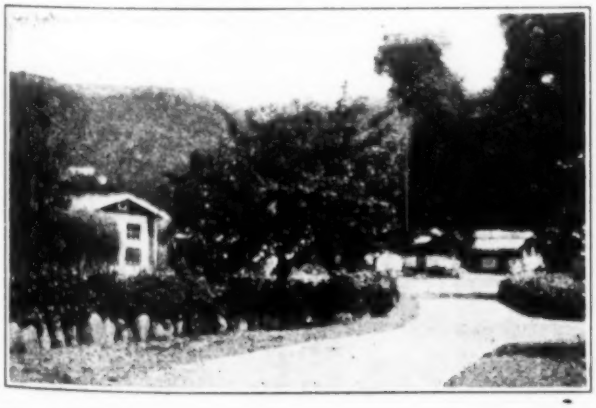

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Board of Regents, who will, in the event of the application being accepted, notify the applicant of his election as an Associate in the American College of Chest Physicians. In the event of the application being rejected, the fees advanced will be refunded to the applicant in full by the Chairman of the Board of Regents.

(b) Associate Membership in the American College of Chest Physicians entitles the applicant to the benefits of the clinical sessions of the College, to a listing in the directories published by the College, and to all other official publications of the College.

(c) Associate Members shall be considered as being on probation and may be refused a Fellowship in the College if they are not able to meet with the requirements of the Board of Regents of the American College of Chest Physicians.

(d) Unless an Associate Member applies for his Fellowship within two (2) years after the stated time for such application, and pays the Fellowship Fee in force, he may be dropped from the Associate Membership rolls of the College at the discretion of the Board of Regents and such notification shall be forthcoming from the Chairman of the Board of Regents.

(e) Until such time as he shall be a fully accredited Fellow of the American College of Chest Physicians, he shall have no voice in the governing bodies of the College, and shall not be entitled to a vote.

NOTE: To amend Article IV, Section 1, Part (c) to read as follows:

"He shall be a member in good standing of his local, state, and national societies, except in the case of those not engaged in practice, such as full-time research workers, and those connected with the army, navy, veterans bureaus, and public health services."

EXPLANATION: The proposed change in this Section of the By-Laws, is to eliminate the need of physicians in the service of the army, navy, veterans bureaus, and public health services, from being obliged to become members of the local medical societies. These physicians are of necessity transferred from one place to another in their line of duty, and in many cases do not find it convenient to join the local medical societies. The present Section in the By-Laws have worked a hardship upon physicians in the employ of the Federal Government who have wanted to join the College.

PROPOSED AMENDMENT TO THE CONSTITUTION AND BY-LAWS

ARTICLE III

Membership

Members of the American College of Chest Physicians shall be known as Fellows, and *associates;* who shall be members of the medical profession as listed in Article II, Section 1., of this Constitution, and who shall have been elected in accordance with the By-Laws and such additional rules as the Board of Regents may from time to time adopt—the By-Laws and such additional rules being intended to insure the election only of physicians of such high qualifications, personal and professional, as would entitle them to be rated as *associates* and as fully qualified Fellows of the American College of Chest Physicians.

NOTE: The only changes in the above Article III are the inclusion of the words "*Associates*". The intention of the amendment is to make it possible to admit physicians as "Associates" who have not fully reached the requirements for "Fellowship", but who show a promise to do so.

Dr. U. E. Zambarano, Governor of the American College of Chest Physicians for Rhode Island has been appointed Superintendant of the Rhode Island State Tuberculosis Sanatorium located at Wallum Lake.

Murray Kornfeld, Executive Secretary of the American College of Chest Physicians has returned to his office at El Paso, Texas, after a three and a half month's field trip.

Dr. Samuel B. English, a Fellow of the American College of Chest Physicians, and Medical Director of the State Tuberculosis Sanatorium of New Jersey located at Glen Gardner; spoke before the Hunterdon County Medical Association, held at the sanatorium on July 25th. Dr. English chose as his topic, "The Family Physician's Part in the Eradicating of Tuberculosis."

(Continued on Page 30)

POSITION AVAILABLE

Positions for resident physicians in Tuberculosis Sanatoria are available in various parts of the country. Single men are preferred. For further particulars write to:

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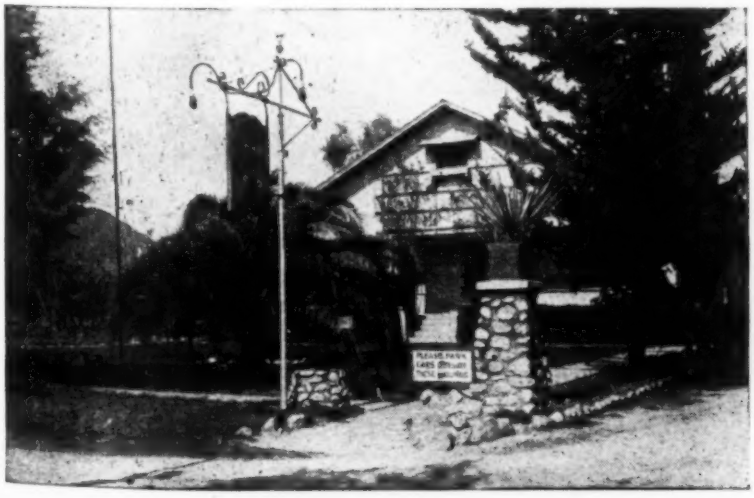

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MEDICAL DIRECTOR

NEW FELLOWS OF THE COLLEGE

The following physicians have been admitted as Fellows of the American College of Chest Physicians and their names will be listed in the 1940 Pneumothorax Directory which is now being prepared for the press. The 1939 Pneumothorax Directory listed 510 Fellows of the College from forty-four states, the District of Columbia, Hawaii, Puerto Rico, Philippine Islands, and Mexico.

New Fellows

Andosca, John B.	Mattapan, Mass.
Bassin, Sydney	New York, N. Y.
Becker, Philip H.	Crown Point, Indiana
Benson, Casper H.	Columbus, Ohio
Blackburn, John Herbert	Queensland, Australia
Burke, Richard M.	Clinton, Oklahoma
Carney, Roscoe P.	Davenport, Iowa
Corsello, Joseph N.	Wallum Lake, R. I.
Curtis, Harold G.	Cleveland, Ohio
Gebauer, Paul W.	Cleveland, Ohio
Gosh, Johareal	Calcutta, India
Gruenfeld, Gebard E.	St. Louis, Missouri
Hashimoto, E. I.	Salt Lake City, Utah
Joannides, Minas	Chicago, Illinois
Johnson, Glenn Raymond	Ottumwa, Iowa
Kilgore, F. Hartman	Houston, Texas
King, Albert T.	Salem, Oregon
Lassman, George	New York, N. Y.
Lebowitz, Edward	Pittsburgh, Pa.
Maher, Joseph Thomas	Koch, Missouri
Marengo, Juan Tanca	Guayaquil, Ecuador, S. A.
McDaniel, Walter S.	Houston, Texas
McKnight, J. B.	Sanatorium, Texas
Melenko, Kronid	Poughkeepsie, N. Y.
Mercer, Nelson	Philadelphia, Pa.
Miller, Louis J.	Chicago, Illinois
Murphy, Paul	Koch, Missouri
Nepomucemo, Fidel	Rizal, P. I.
Nixon, J. W.	San Antonio, Texas
Ornstein, George	New York, N. Y.
Penta, Arthur Q.	Schenectady, N. Y.
Quisumbing, Manuel	San Pablo, P. I.
Reeves, John L.	Philadelphia, Pa.
Reid, Harry P.	Legion, Texas
Rice, Arnold G.	Holden, Mass.
Runde, Raymond H.	Mt. Vernon, Mo.
Russell, John	Des Moines, Iowa
Scott, Chas. W.	Richmond, Va.
Senelick, Marius	Chicago, Illinois
Siasoco, Severo	Rizal, P. I.
Taymor, Joseph	Chicago, Ill.
Trinidad, Angel B.	Manila, P. I.
Volk, Robert	Boston, Mass.
Wiener, Jacob Jesse	New York, N. Y.
Wolpaw, Sydney E.	Cleveland, Ohio
Wolverton, Giles	Dayton, Ohio
York, J. M.	Painesville, Ohio
Young, George E.	Skowhegan, Maine

Forty-eight new members as shown on the above list, have been admitted as Fellows of the American College of Chest Physicians from fifteen states, the Philippine Islands, Australia, India, and Ecuador, S. A. New York State and Ohio have each supplied six new members; Texas placing third with five new members; Illinois, Missouri, and the Philippine Islands tieing with four new members each; and Iowa, Massachusetts, and Pennsylvania have added three new members each to their present membership. Other states which have added one or more new members are: Indiana, Maine, Oklahoma, Oregon, Rhode Island, Utah, and Virginia.

The Governors of the College for the above mentioned states, and the Regents of the districts are to be congratulated for this fine showing.

NOTICE

At the annual meeting of the Board of Regents of the American College of Chest Physicians held at the Chase Hotel, St. Louis, Missouri, on May 13th, 1939; a motion was duly proposed and passed to raise the annual dues of the fellows of the College from $5.00 per annum to $10.00 per annum; same to be effective January 1, 1940.

The above advance in dues was made necessary because of the need for supporting the vast amount of work being carried on by the College within organized medicine.

Frank Walton Burge, M.D.
Chairman, Board of Regents